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TITLE: Hinge apparatus for manually and
automatically opening and closing folder and foldable
apparatus using the same

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ABSTRACTED-PUB-NO: KR2002035553A

BASIC-ABSTRACT:

NOVELTY - A hinge apparatus for manually and automatically opening and closing a folder and a foldable apparatus using the same are provided to open and close a folder in a manual mode by a user's force and in an automatic mode by the driving of a motor.

DETAILED DESCRIPTION - A hinge apparatus(200) comprises a motor(10), a

reduction gear unit, the first cam(90), the second cam(100), a housing(110), an elastic member(120), and a clutching member(130). The motor(10) generates clockwise or counterclockwise rotary power. The reduction gear unit, composed of a ring gear portion, a reduction gear train(60) and an output shaft, reduces the rotary power of the motor(10) and converts it into a rotary power having big torque. The first cam(90) is combined with the output shaft of the reduction gear unit. A pair of lands, formed in the first cam(90), engage with a pair of grooves formed in the second cam(100). The housing(110) provides a cylindrical space in which the second cam(100), the first cam(90), the reduction gear unit, the elastic member(120), the clutching member(130), and a portion of the motor(10) are installed in order. A coil spring is used as the elastic member(120). The coil spring is accepted in a space defined by the outer surface of a ring gear(74), the inner surface of the housing(110), a coupling part(72), and the first cam(90). The clutching member(130) comprises the second elastic member(132), a snap ring(134), and a washer(136). The second elastic member(132), combined so as to enclose the output shaft(50), provides elastic force. The snap ring(134), supported by the elastic force of the second elastic member(132), is coupled with the second cam(100). The washer(136) supports the bottom of the second elastic member(132).

CHOSEN-DRAWING: Dwg.1/10

TITLE-TERMS: HINGE APPARATUS MANUAL AUTOMATIC OPEN CLOSE FOLDER FOLD APPARATUS

DERWENT-CLASS: W02

EPI-CODES: W02-G02;